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Agricultural Memorandum No. 336

Farm Size and Changes in land use 1959-1967

L. P. Smith

Agricultural Memorandum No 335 showed that the livestock population and changes therein were strongly related to farm size as well as to the weather factor of effective transpiration.

The changes in the proportion of the crops and grass area of each county used for grass and for cereals (wheat, barley and oats) between 1959 and 1967 were now examined using the farm size categories in Agricultural Memorandum 335, and subdividing these into high and low effective transpiration counties.

Details of the land use changes are given in the Appendix and the counties below average in effective transpiration are marked with a circle (o).

The changes can be summarized as follows:-

Counties with above average effective transpiration (A)

Category	Average Size (acres)	Percentage Grass 1967	Change 1959-67	Percentage Cereals 1967	Change 1959-67	Effective Transpiration
Very Large A	144	61.9	-9.8	33.7	+12.3	14.90
Large A	105	68.4	-7.5	27.3	+11.2	15.35
Large Medium A	90	64.3	-5.6	29.4	+8.4	15.25
Small Medium A	76	74.0	-3.6	19.1	+7.3	15.65
Small A	63	74.0	-2.7	19.7	+5.5	15.40
Very Small A	51	82.2	-0.2	12.2	+2.9	16.10

Counties with below average effective transpiration (B)

Category	Average Size (acres)	Percentage Grass 1967	Change 1959-67	Percentage Cereals 1967	Change 1959-67	Effective Transpiration
Very Large B	153	40.2	-12.8	49.6	+15.9	14.00
Large B	117	30.8	-10.9	53.7	+13.5	13.90
Large Medium B	95	33.4	-10.5	49.4	+13.0	13.80
Small Medium B	82	50.9	-5.2	33.3	+9.8	14.20

(There are no counties with below average effective transpiration in the 'small' and 'very small" categories).

In the A categories, the correlation between average size and change in grassland percentage is 0.98, - that with cereal change is 0.95.

On the other hand the 1967 percentages of grass and cereals are strongly affected by the weather factor.

This suggests that although land use is primarily a function of weather, the progress towards this ecological balance is a function of farm size.

Any comments or suggestions on this paper should be referred to the author.

Meteorological Office
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Appendix

		1967 Average Holding	1967 Percentage Grassland	Change 1959-67	1967 Percentage Cereals	Change 1959-67
Very Large	o Rutland	176	43.6	-11.8	48.2	+16.3
	o Kesteven	162	25.4	-10.2	55.3	+13.4
	Northumberland	162	69.0	-7.3	26.5	+10.7
	o Northampton	153	47.5	-15.4	45.6	+17.8
	o Oxford	140	45.8	-12.5	49.0	+16.0
	Wiltshire	131	55.3	-10.9	40.6	+14.9
Large	o East Riding	124	31.6	-10.5	56.9	+15.6
	o Berkshire	123	41.5	-10.5	50.1	+15.1
	o Lindsey	120	27.0	-12.1	52.7	+12.6
	o Huntingdon	118	17.8	-13.3	57.3	+13.4
	o Suffolk	116	19.8	-9.0	59.6	+11.4
	o Hertford	111	34.2	-9.1	57.0	+13.3
	Dorset	105	68.4	-7.6	27.3	+11.2
	o Buckingham	104	58.9	-11.0	36.3	+14.4
Large Medium	o Essex	98	22.6	-11.0	58.2	+15.5
	o Leicester	98	59.6	-11.3	36.1	+14.8
	o Nottingham	95	37.8	-11.9	49.9	+14.5
	o Norfolk	94	19.9	-8.3	52.5	+8.0
	o Warwick	94	54.9	-11.8	38.5	+15.8
	Radnor	94	86.3	+1.3	7.3	-0.4
	Hampshire	93	44.0	-8.6	47.7	+13.1
	o Bedford	93	25.0	-11.5	55.7	+16.5
	N Riding	92	57.4	-6.8	34.5	+9.6
	Westmorland	90	92.9	+0.6	4.9	+0.7
	Cumberland	89	84.9	-0.2	10.8	+1.9
	Durham	87	61.7	-4.7	32.4	+7.9
	Gloucester	86	60.7	-10.5	33.9	+13.7
Small Medium	o Kent	82	41.7	-6.1	34.1	+11.0
	o Sussex	82	60.9	-4.4	32.4	+8.4
	Brecon	82	87.3	+0.9	6.9	+0.2
	Isle of Wight	81	58.0	-7.6	34.1	+12.8
	Shropshire	80	65.7	-7.4	27.0	+11.1
	Hereford	80	65.1	-5.9	24.4	+9.4
	Devon	74	77.3	-0.9	16.2	+5.7
	Somerset	72	80.1	-3.2	14.9	+6.4
Small	Pembroke	65	78.9	+0.1	14.4	+3.3
	Stafford	65	71.1	-6.9	22.9	+8.8
	West Riding	64	62.1	-4.8	28.8	+7.4
	Montgomery	63	90.0	+1.6	6.9	+0.5
	Denbigh	60	87.6	-1.4	8.2	+1.3
	Monmouth	60	86.3	-1.2	8.6	+3.3
	Derby	59	76.5	-3.1	19.2	+5.8
Very Small	Cheshire	56	76.8	-2.1	17.6	+5.0
	Carmarthen	55	95.3	+2.7	3.0	-0.2
	Glamorgan	55	87.2	-5.9	9.2	+4.6
	Cornwall	55	74.9	-0.1	15.5	+5.7
	Cardigan	54	87.8	+5.9	8.1	-1.2
	Merioneth	53	94.8	+3.1	2.8	-1.3
	Lancashire	46	76.8	-1.6	16.3	+2.8
	Flint	46	83.5	-1.5	13.0	+4.4
	Anglesey	43	88.1	-0.1	9.5	+2.5
	Caernarvon	35	89.8	-1.5	7.1	+1.2
Intensive Farming	o Cambridge	75	12.7	-6.6	55.2	+7.8
	Worcester	58	56.8	-5.5	26.6	+10.4
	o Holland	56	9.6	-6.8	39.3	+4.6
	o Surrey	56	62.1	-3.1	28.8	+7.1
	o Middlesex	50	50.6	-9.4	30.6	+13.0